

NAVAL INSTITUTE for DENTAL and BIOMEDICAL RESEARCH



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Commanding Officer

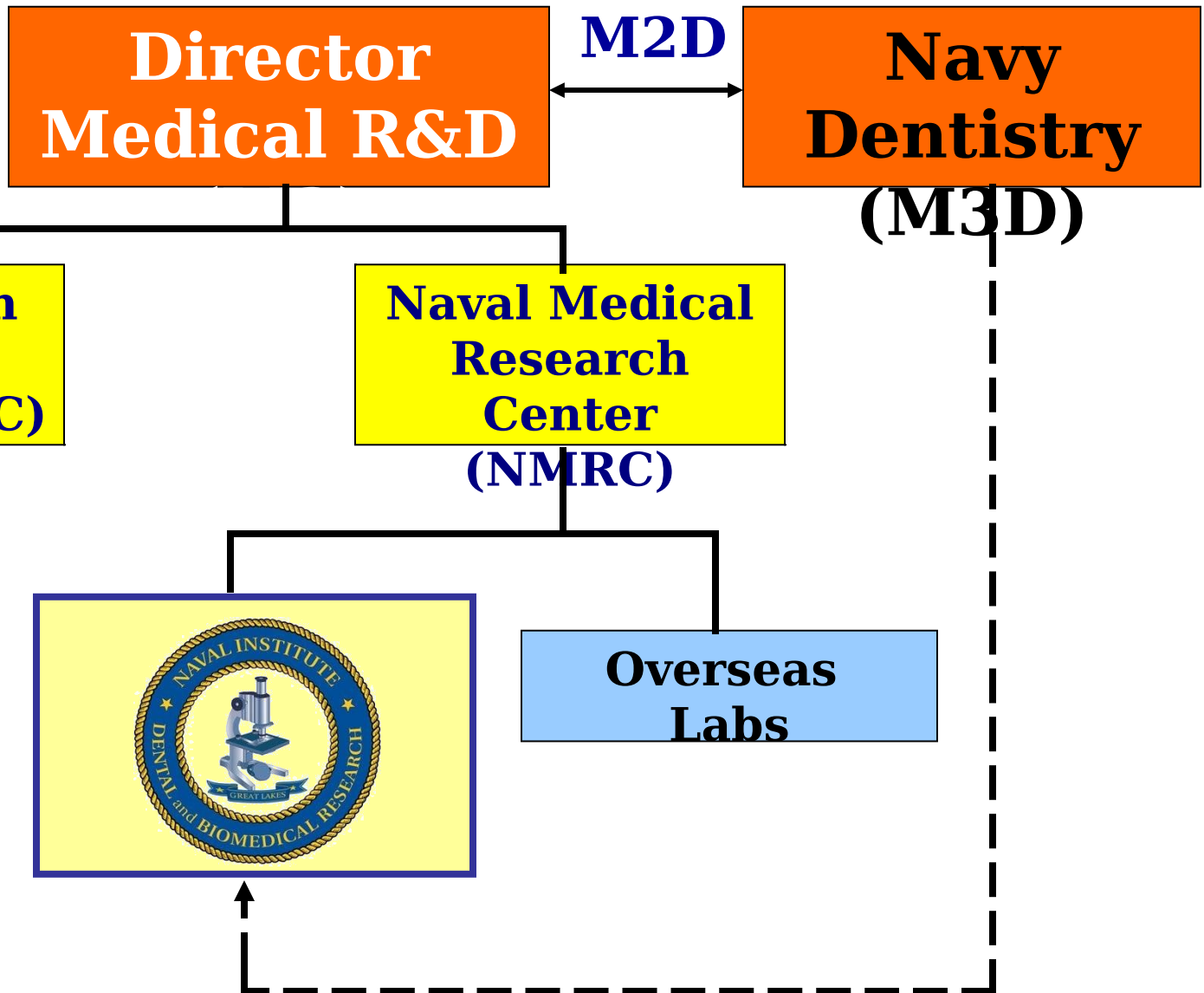
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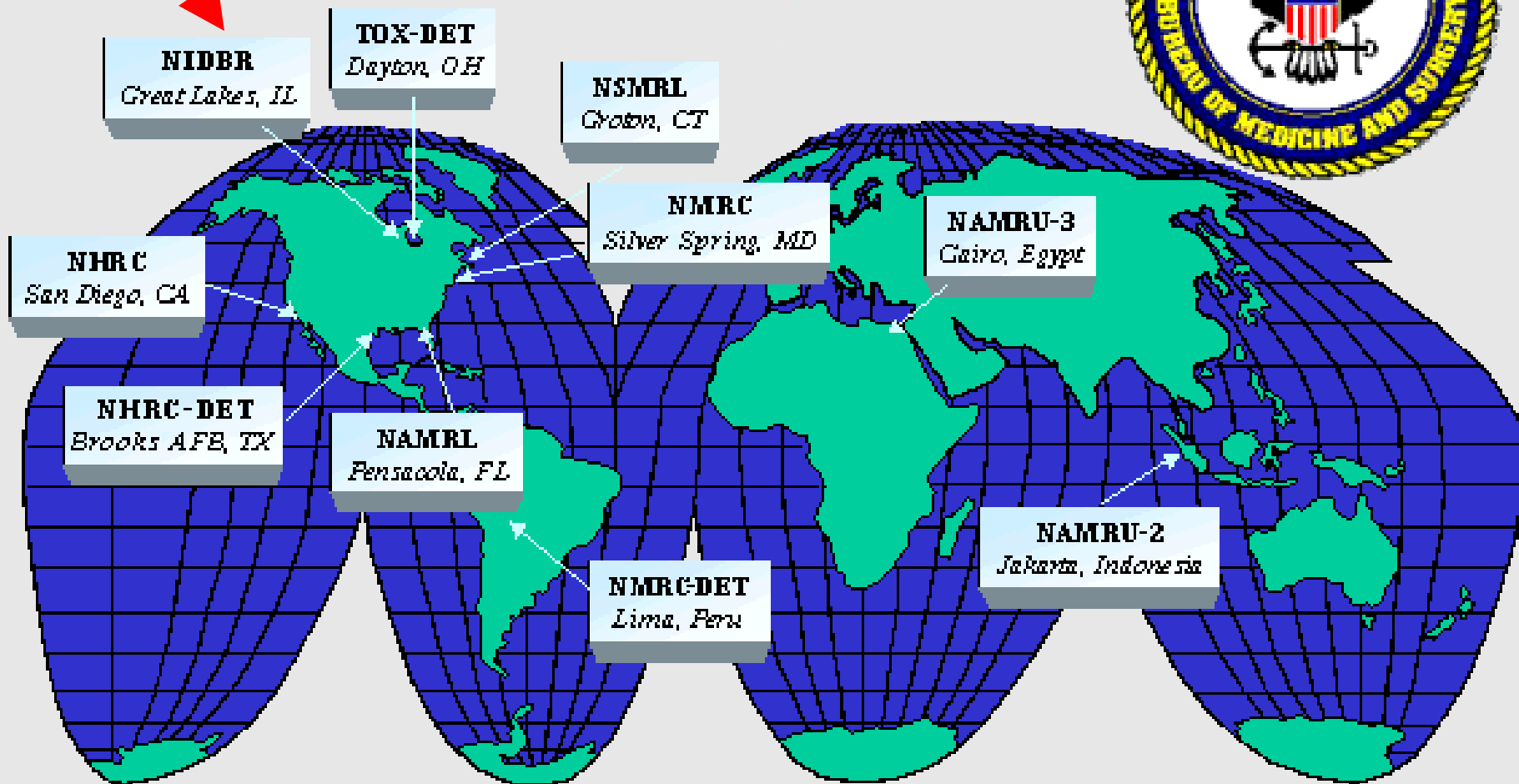
Technical Director
CAPT Dale Ehrlich, DC

US Navy Biomedical Research





Worldwide Laboratories



Military Dental Research Center



Why Dental/Biomedical Research?

- **Dental casualty rate**
- **Dental care anytime, every time, anywhere**
- **First responder treatment**
- **Environmental issues**
- **Evidence-based decisions**
- **Salivary diagnostic research**
- **Ready Access to Recruits**



Results of Oral Trauma



Fractured Tooth



Oro-facial Trauma

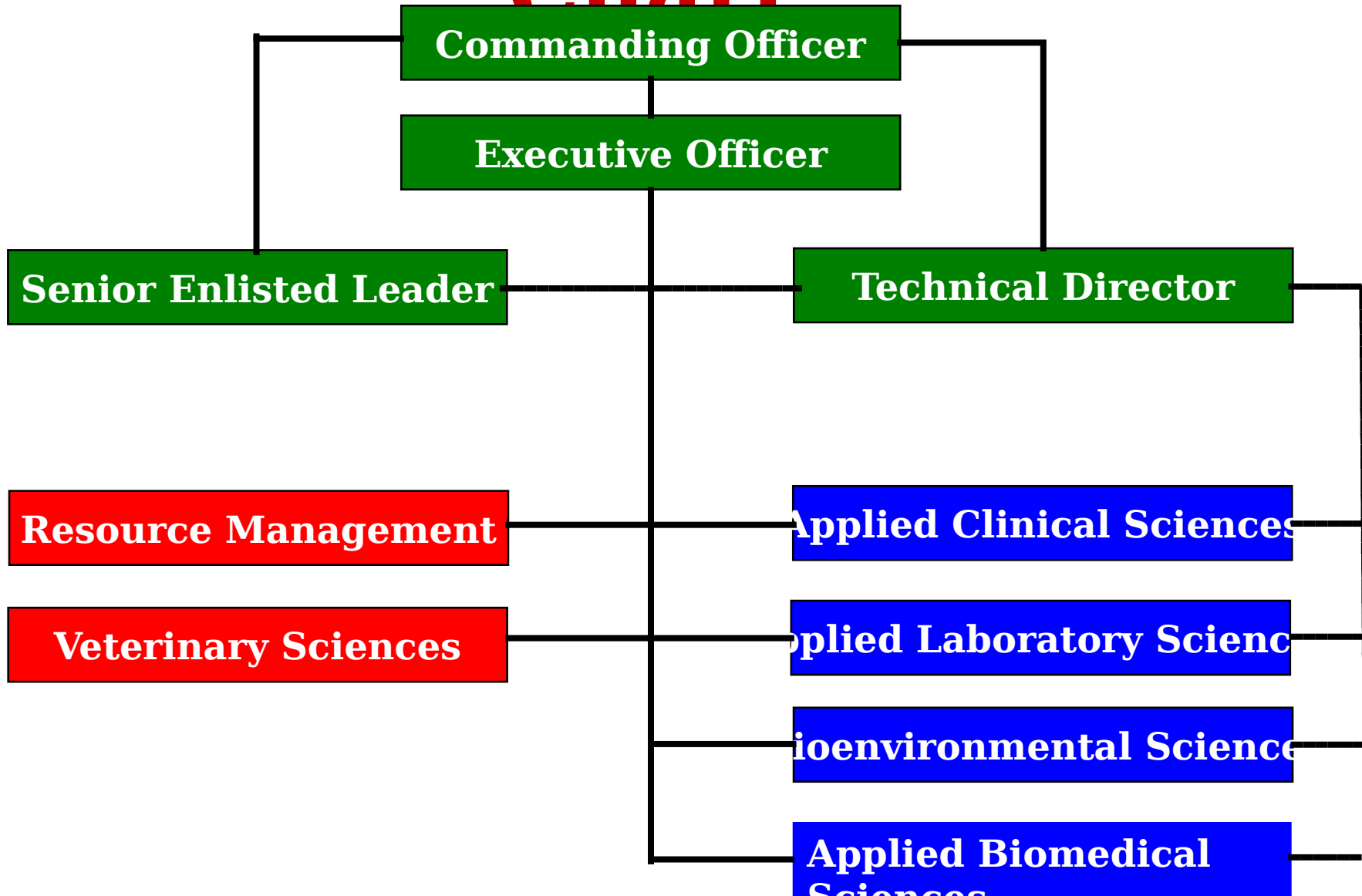


Fractured Cusp



Lost Restoration

NIDBR Organizational Chart



Guiding Principles



Military Focus

Scientifically Sound

Research

Relevant Products

D



Facilities

Naval Station: Buildings 1-H, 43-H
Recruit Training Center: Osbourne Clinic, USS
Constitution
North



Collaborations

- **U.S. Environmental Protection Agency (EPA)**
- **World Health Organization (WHO)**
- **Veterans Affairs (VA)**
 - **VAMC Hines**
 - **NCVAMC North Chicago**
- **Office of Naval Research (ONR)**
- **Navy Environmental Health Center (NEHC)**
- **National Institute of Dental and Craniofacial Research (NIDCR)**
- **Centers for Disease Control and Prevention (CDC)**
- **British Defense Dental Agency**
- **Argonne National Labs (DOE)**
- **Princeton University**
- **Rutgers University**
- **Chicago Medical School**
- **University of Illinois College of Dentistry (UIC)**
- **The Ohio State University (OSU)**
- **Creighton University**
- **University of Texas, Houston**
- **Colorado State University (CSU)**
- **Diachemix, Inc.**
- **Millipore Corp.**
- **British Biocell International (BBI)**
- **Bioport Corp.**
- **US Harvest Postal Protection Corp**
- **ADA Technologies**
- **Bamburgh-Marsh**
- **US Army Dental Research Detachment**
- **USAF Dental Investigation Service**
- **Naval Dental Center Great Lakes**
- **Naval Hospital Great Lakes**



NIDBR Project Highlights *Applied Clinical Sciences*



- **Forward Deployable Dental Dressing**
 - **Completed Material Formulation (disclosed)**
 - **CRADA for Optimization/Delivery System**
 - **Clinical Testing**
- **Evaluation of The ADAL 662 Field Dental Operation**
 - **Laboratory and Field Testing**
 - **Collaborative Project with DIS**
 - **Three Equipment Sets - Overlapping Phases**
 - **DOMC Driven**
- **Evaluation of Sand From Middle East**
 - **Collections From Kuwait and Iraq**
 - **Chemical, Biological, Physical Analysis**
 - **ONR Funded**



VIDBR Project Highlights

Applied Biomedical Sciences



- **Validation of Dental Classification System**
 - **Tasking from M3D/SG Interest**
 - **Digitize Records; Enumerate Dental Emergencies**
 - **Determine Optimum Examination Cycle**
 - **Evaluate Readiness Metric?**
 - **Electronic Emergency Treatment Log/Database**
- **Reduction/Prevention of Stress Fractures in Femur**
 - **3-5% of Recruits Develop Severe Stress Fractures**
 - **Efficacy of Supplementation with Vitamin D/Calcium**
 - **DoD Funded**
 - **CRADA with Creighton**
 - **6,000 Subjects; PQCT Testing**



NDDBR Project Highlights

Applied Laboratory Sciences



- **Salivary Diagnostics**

- **Rapid, Hand-Held, Non-Invasive, Deployable**
- **Lateral Flow and Fluorescence Polarization**
- **Anthrax Immune Status, Tuberculosis, Dengue**
- **Grant For Optimization of LF Test for Anthrax**
- **CRADA for Optimization/Ruggedization of FL**
- **Testing of COTS Assays/Assay Development**
- **Major Articles in Military Medicine, Military
Technology and Int. Rev. Armed Forces Me**
- **ONR Funded Under Warfighter Protection FL**
- **WHO Funded for Proof of Principle**



NIDBR Project Highlights *Bioenvironmental Sciences*



- **Mercury Abatement**

- **Tasking from Chief of Dental Corps**
- **Program 8 Funds Through NEHC**
- **4th Year; CONUS Surveys Complete**
- **95% CONUS Installations - CY 04**
- **6.4 R&D Component - Chairside Filter**
- **Congressional Testimony**

- **Education and Training Efforts**

- **EPA Funded**
- **Website for Dental Mercury (<http://amalgamrec>)**
- **Professional Presentations**
- **Best Management Practices DVD**



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Other Areas of Research



- **Biofilm Elimination and Prevention**
- **Hydroxyapatite-Bone Augmentation**
- **Chronic Orofacial Pain**
- **Treatment of Acute Inversion Ankle Sprain**
- **Biofilms in Dental Unit Water Lines**
- **Mercury Vapors in Dental Operatory**
- **Cortisol Levels in Military Watchstanders**



NIDBR

Recent Products



- **Dental Triage CD-ROM**
- **Dental Image Quiz CD-ROM**
- **Point Papers to Chief of the Dental Corps**
- **Best Management Practices for Amalgam Waste**
- **Mercury Abatement System Installations**
- **Joint Research Symposium With VA/NAVHOS**



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Success Stories



- **Kuwait and Okinawa Deployments**
- **EPA Award for Waste Minimization May 2004**
- **AAALAC Accreditation**
- **Amalgam BMP DVD With EPA and ADA**
- **Broader Funding Base**
- **Collaboration with DIS**
- **Aggressive Public Affairs Campaign**
- **Dental Research Alignment Council (DRAC)**
- **Validation Laboratory for CDC ELISA - Anthrax**
- **TB Lateral Flow Prototype at 90% (N = 60)**
- **Sharing Agreement with VA Hospital**